



Changes to the Draft Risk-Based End State Vision Documents for Lawrence Livermore National Laboratory

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The Draft Risk-Based End State Vision documents for Lawrence Livermore National Laboratory (LLNL) Livermore Site and Site 300 submitted in October 2003 have been modified based on comments received from DOE Headquarters, regulatory agencies, local governments, and the community. The following changes have been incorporated into the Draft Risk-Based End State Vision (Version 2) documents submitted in February 2004. Except where noted, these changes apply to both the Livermore Site and Site 300 documents. Changes that apply to multiple sections of the documents are shown where the change first appears.

Executive Summary

1. Text has been added clarifying that the Risk-Based End State Vision is not a decision document.
2. Text has been added stating that if DOE ultimately decides to seek changes to the current compliance agreements, decisions, or statutory/regulatory requirements, those changes will be made in accordance with applicable requirements and procedures.
3. Text has been added explaining that the 20-year timeframe is for projected land use planning purposes only, and does not apply in any way to cleanup strategies. This timeframe should not be inferred to indicate that DOE anticipates that cleanup will be discontinued in 20 years (or at any arbitrary time in the future).
4. The text has been revised to clarify that the Current State represents conditions in 2003, the Current Cleanup Baseline End State represents conditions upon completion of the current cleanup approach, and the Risk-Based End State represents conditions that would be anticipated if the cleanup were to be based only on risk to onsite and offsite receptors.

Onsite cleanup of ground water for the Current Cleanup Baseline End State is intended to restore and protect ground water as a potential future resource, as well as mitigating risk to current or potential future receptors. Compliance documents currently specify that ground water at the Livermore Site will be remediated to cleanup standards of Maximum Contaminant Levels (MCLs), both onsite and

offsite. Although ground water cleanup standards will not be established for most of Site 300 until 2007, the cleanup standards are expected to be no higher than MCLs. The point of compliance is the impacted ground water body, both onsite and offsite.

The Risk-Based End State presents a scenario that is fully protective of current and projected future receptors, but would not remediate onsite ground water to levels protective of ground water as a potential future resource. For a Risk-Based End State approach, the current cleanup strategy would be modified to: (1) clean up offsite ground water to MCLs, and (2) prevent further offsite migration of contaminants at concentrations exceeding MCLs. Ground water extraction would be limited to ensuring that MCLs are achieved and maintained offsite. The point of compliance would be the site boundary.

5. Estimates of the time and cost to achieve cleanup for the Current Cleanup Baseline End State have been added. Cleanup time or cost estimates are not available for the Risk-Based End State scenario. An estimate of when soil vapor extraction activities would cease is not available for either scenario.
6. Text has been added to clarify that the modeling that would be needed to predict residual concentrations (cleanup standards) and distribution of contaminants for the Risk-Based End State has not yet been performed.

Section 1: Introduction

1. Text has been added noting that the Risk-Based End State Vision is consistent with the NNSA Ten Year Comprehensive Site Plan.
2. Livermore Site Only: Text has been added describing previous soil excavation activities. There is no ongoing ground water impact from these sources.
3. Text has been added explaining that waste management and facility decontamination/decommissioning are not anticipated to affect implementation of a Risk-Based End State.

Section 2: Risk-Based End State Vision: Regional Context

No changes.

Section 3: Site-Specific Risk-Based End State Description

1. Livermore Site Only: Future agricultural use of Sandia National Laboratories (Livermore) has been described in the text and depicted on Figure 3.2b.
2. The population density patterns on Figure 3.4a,b have been modified to be consistent with revised Risk-Based End State Vision guidance (December 2003).
3. Livermore Site Only: Text explaining the impact of the recent closure of East Avenue has been added. No impact on the Current Cleanup Baseline End State or the Risk-Based End State is anticipated.

Section 4: Hazard Specific Discussion

1. Information on the current concentrations of contaminants has been added for both sites (Table□).
2. A summary of the baseline risk assessments has been added, including quantitative risk and hazard estimates, exposure scenarios, pathways, receptors, and document references.
3. Livermore Site Only: Text has been added explaining that there are no ecological concerns due to contamination at the Livermore Site.
4. The discussion of Exposure Mechanisms and Receptors has been modified to provide additional detail on pathways where an unacceptable risk or hazard was identified in the baseline risk assessment. The descriptions of potential receptors have been expanded. Receptors not included in the risk assessment have been described (e.g., trespassers). Where unacceptable risks were identified, the discussion of the risk mitigation or risk management approach for both the Current Cleanup Baseline End State and the Risk-Based End State has been expanded.
5. The exposure barriers for both the Current Cleanup Baseline End State and the Risk-Based End State have been changed from monitored natural and institutional controls to long-term ground water and soil vapor extraction, monitored natural attenuation, and institutional controls. The only significant difference between the two End States is the point of compliance for ground water. The point of compliance for the Current Cleanup Baseline End State is the impacted ground water body, both onsite and offsite. The point of compliance for the Risk-Based End State would be the site boundary. Both End States are fully protective of current and projected receptors, but the Risk-Based End State would not remediate onsite ground water to levels protective of ground water as a potential future resource (i.e., ground water extraction would be limited to ensuring that MCLs [or possibly lower for Site 300] are achieved and maintained offsite).
6. The discussion of exposure barriers has been modified to include discussions of residual risk (where available). An uncertainty/failure analysis has been included for each exposure barrier.
7. On the Conceptual Site Model diagrams, receptors for which an unacceptable risk or hazard was identified in the baseline risk assessment were emphasized.

Section 5: References

1. A complete reference section has been added.

General and Editorial:

1. On some maps and conceptual site models, there were no differences between the Current State and the Risk-Based End State. In these cases, the figures have been combined (e.g., Figures 2.1a and 2.1b have been consolidated into Figure 2.1a,b).

2. The land use shown on the maps for Livermore Site and Site 300 has been changed from restricted to industrial.
3. Livermore Site Only: Sandia National Laboratories (Livermore) has been added to maps in Section 3.4.
4. Text boxes describing the point of compliance for ground water have been added to maps in Section 4.
5. Site 300 Only: On the regional-scale maps, the map area has been reduced to encompass an area approximately 5 miles from the center of the site.
6. Site 300 Only: A map showing a detailed view of the southeastern portion of Site 300 has been added.

Attachment A: Variance Report

1. The Variance Report has been revised based on modifications to the document and comments received from the regulatory agencies, local governments, and the community.